REMARKS

The following remarks are made in response to the Final Office Action mailed August 5, 2010. Claims 1, 3-5, 10, 13-14, 16-25, 32, and 56-58 are pending. Claims 24 and 25 have been previously withdrawn from consideration. Claims 2, 6-9, 11, 12, 15, 26-31, and 33-55 have been cancelled. Claims 1, 4, 13, 14, and 32 are currently amended. Claims 56-58 are new. Applicants respectfully request reconsideration in light of the claim amendments and the remarks provided herein.

Claim Rejections under 35 U.S.C. § 103

Claims 1, 3-5, 10, 12-23, 32 and 53 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application No. 2003/0154974 ("Morgan"). Applicants traverse this rejection and respectfully request reconsideration of the claims as amended.

Claim 1, as amended, recites a dietary fiber composition isolated from a cereal grain containing β-glucan, comprising: a β glucan composition having a weight average molecular weight ranging from about 120 kDa to about 400 kDa, wherein a 1% mixture by weight of said dietary fiber composition and water is stable and has a viscosity of about 100 cps or less, and wherein the dietary fiber composition has a fat content of 0.11% or less.

Claims 3-5, 10, 13-14, 16-23, and 56-58 are dependant directly or indirectly from claim 1.

Claim 32, as amended, recites a composition, comprising: a β-glucan composition in amount sufficient to lower LDL-C, wherein said β-glucan composition comprises a β-glucan compound having a weight average molecular weight ranging from about 120 kDa to about 250 kDa, and a 1% mixture by weight of said β-glucan composition and water is stable and has a viscosity of about 100 cps or less, and wherein the β-glucan composition has a fat content of 0.11% or less.

Applicants respectfully assert that the compositions disclosed in Morgan do not have a viscosity in the claimed range while also comprising a beta-glucan composition within the claimed molecular weight range. Applicants additionally assert that Morgan's composition does not have the claimed fat content.

Viscosity

The Examiner has acknowledged that Morgan is silent with respect to viscosity. However, the Examiner has asserted that Morgan is prepared by substantially the same method as the present invention and Morgan's composition has a molecular weight in the claimed range, therefore it is obvious that the composition will have the same viscosity as claimed. (Office Action, pg. 2).

Applicants respectfully assert that Morgan is not prepared by substantially the same method as the present invention. Moreover, Applicants submit that Morgan does in fact list viscosities of its composition at particular β–glucan molecular weights, and they are contrary to the viscosity range of the dietary fiber composition of the present invention as currently claimed.

Applicants refer to Table 3 in Example 10 of Morgan which lists the weight average molecular weight as well as the viscosity for 3 samples of Morgan's composition in 1% solution. Those 2 columns (viscosity of composition in 1% solution, and weight average molecular weight of β–glucan in the composition) are listed below.

Viscosity	Weight Average Molecular Weight
49	19 kDa
123	75 kDa
300	194 kDa

According to this table, when Morgan's composition comprises β–glucan with weight average molecular weight of 194 kDa, the corresponding viscosity of the composition in a 1% solution is 300. Similarly, when Morgan's composition comprises β–glucan with average molecular weights of 75 kDa and 19 kDa, the viscosity of the composition in 1% solution is 123 and 49 respectively.

It is clear that as the weight average molecular weight of β–glucan in Morgan's composition goes down, the viscosity of the composition in 1% solution also goes down. Even at 75 kDa, the viscosity of Morgan in a 1% solution is 123. For a Morgan composition to have a viscosity in 1% solution of 100 cps, Morgan's composition would include β–glucan with an extremely low weight average molecular weight – somewhere between 19 kDa and 75 kDa.

In stark contrast to Morgan, the dietary fiber composition of the present invention includes a β–glucan composition having weight average molecular weight ranging from about 120 kDa to about 400 kDa, wherein a 1% mixture by weight of the dietary fiber composition and water is has a viscosity of about 100 cps or less.

There is no indication that Morgan's composition could ever achieve a viscosity at the claimed low level with beta-glucan in the claimed ranges. Indeed, when Morgan has β–glucan within the claimed range, the viscosity of its composition in 1% solution will be significantly higher than the present invention.

Fat

The Examiner has acknowledged in the office action that Morgan is silent with respect to fat content. However, the Examiner has stated that removing fat using an alcohol is known in the art. Applicants respectfully assert that the Morgan process differs from the present invention, resulting in a difference in fat content. Applicants also respectfully assert that it would be contrary to the purpose of Morgan to reduce fat to the claimed level.

During extraction of the β–glucan in water, Morgan utilizes a temperature range of 25 to 65° C. (Morgan, para. 0043). A preferred embodiment of Morgan calls for temperatures of less than 60° C. (Morgan, para. 0020). The present invention utilizes higher temperatures than Morgan. The higher temperatures utilized by the present invention force the fat to separate more from the grain structure, thereby allowing the fat to be separated more efficiently and effectively in a subsequent fat separation step explicitly included by the present invention. (Published Application, para. 0057). In contrast, Morgan does not include an additional fat removal step. Morgan also discloses the use of a hydrophilic membrane which would retain the fat in the composition.

Thus, Morgan chooses not to eliminate the fat from its composition at several stages of its process. First, by maintaining a lower temperature during extraction of β–glucan in water, then by explicitly excluding a fat separation step, and finally by utilizing a membrane which will retain the fat. It is important to note that Morgan does discuss removal of other components such as arabinoxylans, protein, and starch from its composition. However, Morgan never indicates that it removes the fat from its composition. This makes sense because an increase in the amount of fat may allow for easier gelling. Gelling is an important concept of Morgan. The composition of the present invention, in stark contrast, has "non-gelling characteristics". (Published Application, para. 0053). Unlike Morgan, which states that gelling can occur by shearing or heating and cooling its composition, the composition of the present invention does not gel when sheared or heated and cooled.

The Examiner has indicated simply that fat could be removed by using known an agent such as alcohol to remove fat. There is no indication that such a step alone, incorporated into Morgan, could reduce fat to such a low level. Moreover, any attempt to reduce fat may cut against Morgan's desire for a composition with β–glucan which can readily gel.

Conclusion

The present invention can be distinguished from Morgan in at least 2 important ways. First, the present invention is able to maintain low viscosity (100 cps or less) in 1% water while comprising β–glucan with weight average molecular weight ranging from 120 kDa – 400 kDa. At these β–glucan weight average molecular weights, the composition of Morgan would have significantly higher viscosity in 1% solution. Second, the present invention has very low level of fat (0.11% or less). There is no suggestion that Morgan could ever attain such a low level of fat in its composition. Consequently, Applicants respectfully assert that the pending claims are patentable over Morgan.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone number to facilitate prosecution of this application. Please apply any charges or credits to deposit account 50-2342.

Respectfully submitted,

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